

Aviation News

McGRAW-HILL PUBLISHING COMPANY, INC.

SEPT. 24, 1945

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Adds to Honors: T. P. Wright, Civil Aeronautics Administrator, just announced as winner of the 1945 Daniel Guggenheim Medal "for outstanding contributions to the development of civil and military aviation, and for notable achievement in assuring the success of our wartime aircraft production program."



THERE'S A NEW STANDARD IN AIR TRANSPORTATION!

Lockheed Constellation

Lockheed Aircraft Corporation, Burbank, California  Years ahead in the science of flight



THE AVIATION NEWS

Washington Observer

WHO WAS AHEAD?—Wright Field and Washington, which have been a little apart on previous occasions, almost collided head-on the other day with this one: Wright Field said in part, in a release, "... we surpassed the Germans in the design and performance of our aircraft." From the War Department in Washington came a release which said in part: "German jet planes and rocket weapons appeared in the skies more than a year before the Allies began using them... technically they were far ahead of any aircraft the Allies had in action for short range missions, and they are unquestionably the fighter planes of the future."

AIRCRAFT OUTLOOK.—Latest unofficial, but authoritative estimates on military aircraft production put the total for the rest of this year between 650 and 700 units and for 1945 a total of around 1,200. The 1947 unit estimate was about 1,500 airplanes. These are considerably under previous estimates and indicate a dollar volume of between \$500,000 and \$600,000. The units do not include commercial production.

HUGHES FLYING BOAT.—The question has arisen in government financial circles whether additional funds will have to be spent after the \$18,000,000 advanced to Howard Hughes for construction of his giant flying boat. Additional money may be needed to move the craft from Culver City to the harbor and also to finance the flight testing. Officials say that no specific application has been made thus far, but that they want to see the project completed.

COMPROMISE.—Overlooked in general comment on the switch in aircraft disposal methods by the Reconstruction Finance Corp., is the fact that the new policy is not a complete acceptance of aircraft dealer's original proposal. When the storm first broke last spring, NATA and others wanted RFC to make deals with the exclusive agents. Even the new policy does not do this. Individuals may still buy direct from RFC sales agents.

SPB ADVISERS.—Surplus Property Board is at last moving to follow old-repeated suggestions that it establish industry advisory committees. Membership of committees for consumers' goods is now being solicited. Nothing has yet been done in the industrial field, including aircraft, but this phase of the program should be well under way. Committees will work with both



SPB and the disposal agencies concerned. SPB Administrator Symington delayed in giving the go-ahead for the appointments until the Attorney General gave his approval.

SURFACE CONTROL.—Congressional advocates of surface carriers' entry into air transport may seek to tie their pet project to pending legislation to institute a Federal airport construction program. At the



Close-up of rocket chambers carried by Lockheed P-38, latest and most efficient underwater projectile carriers developed during the war.

House Rules Committee hearing that took up the Lea airport bill, Rep. Carroll Reece (R-Tenn.) argued that the bill is an amendment to the Civil Aeronautics Act of 1938 and that, therefore, in the floor debate general amendments to that act should be permitted. If this viewpoint were to be sustained, Reece could introduce an amendment to permit surface carriers to operate airlines—a proposal that was narrowly defeated when Reece brought it up at the time of Interstate Commerce Committee hearings on the Lea omnibus bill last year.

STERLING AREA.—American manufacturers of aircraft equipment are concerned about the opposition of British policy in the sterling area which can block the sale of American manufactured aviation goods. Many American manufactured exports which are competitive with products manufactured in the sterling area already have been blocked out. It is understood the State Department has taken the matter up with Lord Keynes and Halifax in the current discussions for a long-term loan. It is reported that we have informed the British that definite commitments to end their currency restrictions must be made if any loan is granted.

"know how" is an asset in peace, too!



IN PEACE as in war, "know how" is a priceless asset of American industry. And over the past fifteen years, in peace as in war, Solar has developed an invaluable "know how" in fabricating high temperature alloy products for the disposition and utilization of hot gases.

Aircraft exhaust systems, heat exchangers, jet propulsion and gas turbine engine parts are the principal products upon which Solar has established and maintained its industry leadership. The design, engineering and manufacturing skills which have won this recognition will continue to help this

country retain the foremost military and commercial air power. They are also now available to manufacturers in other industries whose problems are the production of heat and corrosion resistant products.



SOLAR AIRCRAFT COMPANY SAN DIEGO 12, CALIF. JED MOINES 5, IA

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Aviation News
McGraw-Hill Publishing Co., Inc.

Sept. 24, 1945

AIRLINE TEMPO QUICKENS

Seven Lines Ask Constellations; AA To Absorb Mid-Continent Line

Survey flights begun for three N. Atlantic routes; National, United, American plan early usage of DC-6 fleets; fast non-stop transcontinental services shaped by two carriers.

By MERLIN MICKEL

Proposal for an airline merger brewed last week with disclosure of four-engine plane orders and announcement of new services to accelerate already rapid developments in current operations and future plans of the airlines.

Within the week:

- Seven airlines, including five U. S. flag carriers, were reported negotiating for 94 Lockheed Constellations to cost \$73,000,000, with some contracts already signed.

- American Airlines announced plans to absorb Mid-Continent Airlines, a few days after American had promised that within six

months it will be providing four times as much scheduled service as at present.

Survey flights across the North Atlantic were started by the three airlines recently given new Civil Aeronautics Board certificates in that area.

National Airlines disclosed that its officers have been authorized to negotiate a \$7,500,000 contract to purchase 11 Douglas DC-6's, elongated version of the C-54, and United Air Lines, describing these planes, said it expects to have 30 of them in service next year. American, which already had an-

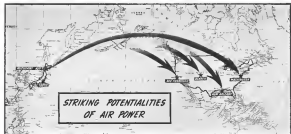
nounced orders for 30 DC-6's, first to be received next year, revealed that it expects to be using 30 C-54's from RMC surplus before the next six months have passed.

Trans World

The initials "TWA" now mean Trans World Airlines, as a result of the launching out of Transcontinental and Western Air, Inc. into international commercial air service with its new fleet of Constellations.

A TWA spokesman said last week that the words "Trans World Airline" would be used in reference to the airline both domestically and internationally, although the name Transcontinental & Western Air, Inc. would be retained for corporate purposes. Eventually the corporate name may be shortened to "TWA, Inc."

A hint of fast, non-stop service in the offing was contained in applications by both American and Northwest Airlines to consolidate



JAPAN-WASHINGTON:

Chart of the approximate course spread last week by three B-29's in a 5,645-mile, one-stop flight from Japan. Original intention was to fly non-stop to Washington, but along headwinds forced refueling at Chicago, after a hop of 1,935 miles in three rungs from 23 to 27 hours. Commanding the three planes

were Lt. Gen. Banerji M. Giles, deputy chief of strategic air forces in the Pacific, Maj. Gen. Curtis E. LeMay, chief of staff of the strategic air force, and Brig. Gen. Kenneth G. Donnell, of the Tenth Air Force. The chart also graphically shows where similar enemy forces could strike.



NEW NAVY FIGHTER:

Limited production will center on the Corsair FG, designed by Chance Vought and produced for the Navy by Goodrich Aircraft Corp. The plane was unveiled for the first time last week. Powered by a Pratt and Whitney Wasp Major engine, with a waiting rating of 3,000 hp, which will develop 2,850 combat hp, or more, the FG is reported to have a rate of climb half again as fast as that of the latest jet plane and is faster than its sister ship, the FG1, which set transcontinental records of better than 420 mph earlier this year. The FG is rated at 600 mph at 16,500 feet without water injection and at 450 mph at the same height with water injection. It has a 2,500 mile range and can be used as a lead-in or carrier plane. The new plane is equipped with a Hamilton Standard Super-Hydrovac propeller, specially designed vertical tail surfaces including automatic auxiliary rudder, and a 370-degree bubble canopy.

der it, an agent will choose the commodities he feels he can sell, and accept them as a "management basis." He will deduct from his selling price 40 percent to cover his costs, and return the balance to RPC.

Key to successful operation of this system, Col. Pelenka says, is

choice of agents and granting them complete freedom of choice. RPC will not enter into an agreement with any firm unless the latter can prove it has a successful record in handling the type of commodities covered by the agreement. If an agent feels any particular item cannot be sold, he will not be forced to take it.

Staff Decision—Operation of the fixed-price agency agreement is being handled by the components section itself, after the RPC board of directors turned down a proposal to utilize the staff and facilities of the Murray Cook Corp. to supervise disposal under agency contracts. That organization, a non-profit legislative group, had a successful record in disposing of surplus from the Metals Reserve Corp.

Navy Atom Planning

Adaptation of the atomic bomb to be used by carrier-based airplanes is being worked out by the Navy Undersecretary Antonia Gales pointed out that effective as the atomic bomb is, it is still a bomb and must be carried to the target.

Gates speaking at the launching of the 45,000 ton carrier Midway,

largest, fastest craft of its kind abroad, said it took little imagination to realize the carrier's role, nor was he revealing any secrets when he said that carriers will be adapted to the new weapon.

P-V 'Copter Firm Gets New Support

Increased Navy awareness of the value of research and development in its post-war aviation program soon is expected to take dollars-and-cents shape as the granting of additional funds and facilities to the P-V Engineering Forum, Inc., Philadelphia, helicopter manufacturers.

Small in size and resources, the company has already developed, under naval contract, a radically new helicopter prototype capable of carrying a crew of two and ten passengers (AVIATION NEWS, July 29), and styling a novel blade rotor arrangement.

New Place—Designated XERP, the helicopter is believed to be the main reason behind reported impressions of Navy officials that the company has the engineering ability and disposition to develop "an entirely new type of aircraft."

Just what the "new type" would be is not revealed, but it is widely recognized that the Navy is placing considerable emphasis on the development of helicopters for transport work and for delivering cargo to undeveloped landing areas.

First Plane Sales Listed By ANLC

Armed Division of the office of the Army-Navy Legislative Commission reported sales and leases of seven overseas surplus airplanes, one glider, and parts of a plane, during the first month of a quarter. Total sales amounted to \$167,359.

Two Douglas C-53 transports were sold to the Chao National Aviation Corp. in Calcutta, and two others leased to Danish Airlines at Cairo and Cebu. Sales of surplus aircraft of the C-47 type were made in England, Colombia and India. The transport planes were allocated by the Surplus Property Board.

Boeing Basis—Thomas B. McCarty, Army-Navy Legislative Commissioner, said all sales were made for American dollars. The

two transports were sold for \$130,000 or about half their original cost. McCabe pointed out that the standard price of these planes when surplus is \$40,000 "is and where it is" regardless of condition.

Two other transports leased to Danish Airlines brought \$16,000. Other purchases included an C-53-2 aircraft, based in England, by B. E. Smith in New York City for Sydney Cotton of England, for \$28,000; a TG-5 glider, by E. W. Lowe, of Columbia, for \$25,000; and B-17 parts for the ARA airlines in Stockholm for \$5,567, in addition, a wrecked C-47 transport was sold to the Colombian government for \$4,500.

All surplus transports, when delivered, are allocated by the Civilian Property Board on the basis of need. A total of 287 Douglas DC-3 type transports have been allocated by SIPD, of which domestic airlines received 139, the rest went to foreign airlines.

New Flag Line Bill Seeks "Showdown"

Senate aviation jurisdiction division also sought as McCarran serves legislation strategy.

A showdown on the still unsettled issue of aviation jurisdiction in the Senate and the highly-controversial issue of a "community company" for overseas air transport carriers may be forced in the near future by Nevada's Democratic Sen. Pat McCarran, the author of legislation that would create an "All American Flag Line."

McCarran's strategy for forcing the showdown on the two issues would be to introduce a "new, revised, and improved" bill creating a single company for overseas aviation, which would be so designated and framed as to highlight significant Commerce aspects of the measure and make its reference to Senate Interstate Commerce unavoidable.

Content Certain—That action would, of course, be controlled by Senate Commerce Committee Chairman Sen. Joseph Bailey (D-N.C.), forcing a Senate test on the aviation jurisdiction question. McCarran, it is felt, would subsequently push for another showdown on his issue with his measure, which failed to get a favorable report from Commerce, in June, by a tie vote.

The SENATOR said AVIATION NEWS

T. P. Wright Gets Air Award

T. P. Wright, CAA administrator, has been awarded the Daniel Guggenheim Medal for 1948 "for outstanding contributions to the development of civil air carrier aircraft, and for notable achievement in assuring the success of our wartime aircraft production program."

The award was established for the purpose of honoring persons who make notable achievements in the advancement of aeronautics. Previous for the award was made in 1947 by the late Sen. Charles McNary of Oregon, who was the Daniel Guggenheim Fund for the Promotion of Aeronautics.

Air Honor—Wright is an outstanding figure in aviation both in the United States and abroad. His work on the aircraft production program as a member of the Aircraft Production Board and as director of the Aircraft Resources Control Office contributed to his award.

Other factors involved in the Guggenheim Medal Award were his many technical contributions as a leading aeronautical engineer and executive, including develop-

ment of the surplus which won the \$500,000 award in the Guggenheim Side Aircraft Competition of 1944.

Wright, last May, delivered the Wilbur Wright Memorial Lecture at the invitation of the Royal Aeronautical Society. He is also known abroad for his work as technical secretary of the International Civil Aviation Conference, at Chicago, Nov. 1944 and for his participation in the U. S. Strategic Bombing Survey.

Air Panel—He is a member of the National Advisory Committee for Aeronautics and chairman of the committee on aerodynamics of the NACA, past president and fellow of the Institute of Aeronautical Sciences, honorary fellow of the Royal Aeronautical Society and a member of SAE and other scientific societies.

Wright, vice-president and director of engineering of the Curtiss-Wright Corp., before entering government service in 1944 when he became a member of the National Defense Advisory Commission. He continued with OPMA, WPA and finally the Aircraft Production Board, prior to his appointment as administrator of civil aeronautics.

that he has delayed action on the "community company" proposal because he cannot make up his mind whether to introduce a new legislation or as a substitute to the Flag Line bill.

McCarran's revision of the single company bill, it is reported, makes changes in the steel construction of the proposed company which might eliminate the opposition of some Commerce conservatives.

Members—McCarren, a Nevada Democrat, has been working to get the "community company" measure passed in which way the balance of weight would fall off and when the single instrument proposition is again put to a test.

Widely-regarded Sen. William Knowland (R-Calif.) has been selected to fill the position of the late Sen. Murray Johnson (R-Calif.) on Commerce. Knowland is generally expected to take the same position as his predecessor, who on aviation votes joined with the Republicans bloc in favor of an "All American Flag Line."

Sen. Harold Burton (R-Ohio),

one of the two Republicans (the other: Sen. Clay Corman of Oregon) who opposed the McCarran community company bill, will vacate his position on Commerce when the Senate confirms his nomination to the Supreme Court. Burton's vacancy will not be filled.

Thus may mean that the opposition to a "community company" has lost the decisive vote on the committee.

Munitions Board Gets Aircraft Role

Important authority has been delegated to the Army and Navy Munitions Board by the War Production Board in the assignment of preference ratings for military, naval and aircraft experiments/projects.

This means specialized munitions in obtaining materials and facilities for the aircraft industry working on experimental and development projects under the National Advisory Committee for Aeronautics and for special pro-

- AVIATION CALENDAR**
- Oct. 24—Boeing Washington Conference, Washington
 - Oct. 25—Boeing Washington Conference, Washington
 - Oct. 26—Boeing Washington Conference, Washington
 - Oct. 27—Boeing Washington Conference, Washington
 - Oct. 28—Boeing Washington Conference, Washington
 - Oct. 29—Boeing Washington Conference, Washington
 - Oct. 30—Boeing Washington Conference, Washington
 - Oct. 31—Boeing Washington Conference, Washington
 - Nov. 1—Boeing Washington Conference, Washington
 - Nov. 2—Boeing Washington Conference, Washington
 - Nov. 3—Boeing Washington Conference, Washington
 - Nov. 4—Boeing Washington Conference, Washington
 - Nov. 5—Boeing Washington Conference, Washington
 - Nov. 6—Boeing Washington Conference, Washington
 - Nov. 7—Boeing Washington Conference, Washington
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NEW BRITISH TEMPEST

Just-released picture of the Tempest II, designed by Hawker Aircraft, Ltd. Craft is powered by a Bristol Centaurus V engine of more than 2,500-hp, driving a four-bladed constant speed propeller. Span is 41-ft., length 33-ft. 6-in., height 14-ft. 6-in.; wing area 302 square feet and weight about 11,500 pounds.

grams of the Civil Aeronautics Administration.

The directive of this matter, just issued, marks the start of the Army and Navy Maritime Board comeback to control over military production in advance of the demise of WPB. A major controversy early in the war production program resulted in WPB stripping ANMB of three powers. The directive now permits the maritime board to engage in limited assignment of priorities for NACA and CAA, for activities performed at the request of or under sponsorship of the Army, the Navy and the Office of Scientific Research and Development.

Air Meets Return

Plans for resumption of two of the most noted personnel air events have been announced.

For the first time since 1941, the All-American Air Meet will be held January 4, 5 and 6, 1946, at Miami.

The National Air Races last started in 1939, will return to Cleveland, near the next summer, it is stated by Albert J. Weatherhead, Jr., president of Weatherhead & Co., and vice-president of the Cleveland Chamber of Commerce. It is expected that at least one of the events will feature jet-propelled aircraft. Arrangements for participation of Army and Navy pilots have been discussed by Weatherhead with Lt. Gen. Ira C. Baker, deputy commander of the AAF, and with Vice Admiral Marc A. Mitscher, deputy chief of naval operations (air).

conditions, and overall economy of operation at Columbus.

Production at the Columbus plant was suspended on the H-10 Super H-103C, the SGI Seahawk, scout-observation plane. The Buffalo facilities produced some 15,000 P-40s as well as C-46 Commandos and miscellaneous trainers and attack planes.

Changes included Robert L. Ezrie, vice-president, has been placed in complete charge of the airplane division as well as the propeller division of which he has been general manager since 1935. He joined Curtiss-Wright in 1939, became a Washington representative in 1935, was made assistant to the general manager of the airplane division plant in Buffalo in 1937, and became vice-president of the corporation in 1939. He was elected to the board of directors in 1941.

Burdette S. Wright, vice-president of the corporation, in charge of the airplane division since 1940, will move from Buffalo to company's headquarters office in New York to assist in reorganization. He joined the organization in 1935 as manager of the Washington office of the Curtiss-Wright Aircraft and Motor Co., and became vice-president of the Curtiss-Wright Corp. in 1939, general manager of the company's Buffalo plant in 1936, and general manager of the entire airplane division in July, 1940.

D. M. Williams, senior vice-president of Curtiss-Wright and executive vice-president of the Wright Aeronautical Corp., joined the organization on a war-time basis in 1943. He has been on leave of absence as president of the Ruston Manufacturing Co., since December, 1941 and will return to that company about Dec. 1.

R. H. Harrison, vice-president, has been named general manager of the airplane division. Harrison was borrowed from the International Harvester Corp. for the war period.

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PRIVATE FLYING

North American Lightplane Revealed; Low Price Seen

Surprise announcement of completed mockup for four-place, low-wing monoplane being speculation of cost below any other comparable craft; machine may be eventual powerplant if plan is approved

By SCHOLER BANGS

North American Aviation, Inc., at Los Angeles Airport, may have a four-place, low-wing monoplane line production immediately to compete in the personal aircraft market.

A wood mockup has been completed, finished ten days after work on it was started.

Green Light—J. H. Kindelberger, company president, probably will carry mockup photographs and complete sketches to New York this week and on Friday (Sept. 28) ask directors in their first post-war meeting to give a formal green light to what apparently would be the company's first commercial manufacturing venture.

If production is authorized, the plane may be built to undercut the selling price of any comparable personal plane now built or under development.

As indicated in AVIATION NEWS, July 18 and 23, the North American lightplane may be the General Motors entry into the personal plane market and also may be the first gas turbine-propelled personal plane.

Very Secret—Only a few North American executives and workers have seen the mockup, but its existence may be a surprise to most of the aircraft industry. On September 3 an AVIATION NEWS survey of the post-war trends of West Coast manufacturers disclosed that the company had begun "an intensive sifting of several logical commercial designs."

Up to this time, Kindelberger has been able to convince heads of other companies, competitively interested in his post-war plans, that his objective is to perpetuate North American as a military producer.

First quasi-open indication of the company's commercial intentions was gained when Kindelberger pre-talked before a meet-

ing of North American foremen recently, hinted at plans for early commercial production, and was heard that the company again would have a heavy production force at work by the end of next year.

Low Planning—Actually, North American's explosive production of a personal plane mockup—which still must be regarded as a tentative design and subject to rejection—was no sudden inspiration.

For months, company engineers have been firing at Kindelberger and his immediate administrative consultants a barrage of death-knells ranging from design details to overall rough drawings of lightplanes and transports.

For at least three months a small group of North American marketing analysts have been busy sifting out the most promising of the countless personal aircraft market

forecasts which have been made during the past year.

Cabin Space—The present mockup is known to have spacious cabin accommodations and a reinforced sliding plastic canopy entrance but little information is available concerning other features.

It is known, however, that at least one alternative design being studied by North American engineers would call for a gas turbine-propeller powerplant of much smaller size and power than are generally being considered for planes of the future.

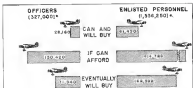
In view of the General Motors Corp. holdings of North American stock, it would be logical also that the North American firm plans offered a place for the much-discussed GM 500-hp liquid-cooled engine, which would be well-suited to a plane of this size.

Developmental Problem—Since many engineers believe the gas turbine-propeller and jet propulsion are still several years from practical commercial or personal plane use, it is possible that the GM engine would be the first powerplant for North American's entry into the personal plane market.

Detailed information concerning the design probably will be given to the company for some time to come, partly because plans to build it have not been "frozen" as a definite project, and partly because of the strong design competition now existing among light-plane designers.

Although the assumption that North American wants to enter

PLANE PURCHASE PLANS BY AAF RETURNEES



* SOURCE: AIRCRAFT YEAR BOOK 1945

Statistics announced by the Civil Aeronautics Administration disclose that 37,610 Army Air Force officers and men have indicated they can afford to buy personal planes. A larger group of 163,208 returnees indicated they would buy planes if they can afford them, while 240,328 returnees indicated they eventually expect to buy planes.



HIGH ALTITUDE TAKEOFF

To demonstrate performance of the Stinson Voyager 150, in high altitudes, Cessna and Vultee Aircraft Corp. recently tried out the new four-place personal plane at Coonville, Colo., described as the highest FAA-designated airport in the United States. As the photo indicates, the plane took airborne after a short run despite the "thin" air at 8,700 ft. Service ceiling of the Voyager is 16,000 ft.

the low-price market is speculative, it is believed reasonable in view of the numerous models of three- and four-place personal planes already under construction to retail for four and five thousand dollars.

Lockheed's much-publicized one-place Little Dipper experimental plane is expected by many to emerge commercially in two- and four-place production, and with production costs brought to a new low by an original method of over-wrapping the plane's metal skin around a light and quickly fabricated framework.

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Arizona Air Parley

Realizing the importance of an orderly and cooperative development of private flying facilities, the Tucson Chamber of Commerce will

sponsor Arizona's first statewide aviation conference, Nov. 15-16. Max Sorenson, of the seminars will be to gather and disseminate the latest information on air activities within the state so that overlapping and useless duplication will be avoided, making way for a concentrated development program. Pilots, operators, mayors, and county officials, plus members of chamber of commerce aviation committees throughout the state, have been invited to what, it is hoped, will become a regular method of advancing aviation within the state.

Canadian Aviators Ask Medical Policy

Canadian pilots held a posted meeting at Toronto's Royal Canadian Air Force headquarters to discuss the general question of policy on medical standards by the Department of Transport, Ottawa.

Some 60 pilots, including many well-known bush pilots and veterans of the First World War attended the meeting, brought about by tightening of medical standards. Civil pilots have to be examined every six months, and few would submit to electrocardiographs of their heart condition, and meet new visual accommodation requirements reported to have been recommended in the civilian aviation section of the Department of Transport by medical officers of the Royal Canadian Air Force.

High Standard—Some of those attending the meeting pointed out that civilian pilots must meet stringent or visual standards than combat pilots of the RCAF.

At Ottawa, A. S. Graham, assistant director of civil aviation, Department of Transport, stated that reports of license cancellations for civilian pilots are exaggerated, that only a couple of percent of Toronto pilots have had their licenses revoked.

A committee was formed at the meeting to find out what is happening to civil aviation in Canada. On the committee are Jack Austin, Austin Airways, Ltd., Toronto; Clare Leavens, Leavens Bros Air Service, Toronto; George A. Penfold, director of the Ontario government's Provincial Air Service, South Air Market, and Air Ontario; and Norman Brown, recently released by the RCAF, and operator of a charter service at Toronto.

Lightplane Power Increases Overshadow Design Changes

Possibility of accomplishing performance advances through aerodynamic exploration and controllable props advanced as roundup shows many contenders in "family plane" market are raising engine ratings to gain desired characteristics.

By KARL HESS

Added engine power, as an answer to operational problems, is becoming more markedly a light-plane design doctrine. A roundup shows at least eight contenders in the "family plane" market are planning horsepower hikes for their post-war products.

All the planes definitely swinging toward larger powerplants as a basic design feature, are believed slated for below—but close to—a \$5,000 selling price. The final price, it is said, will represent an increase over past estimates but will provide increased speed and takeoff performance.

Power Vs. Design—Despite these performance advantages many designers have posed the possibility that equal results could be obtained by sticking to lower horsepower ratings (with the resultant operation economy) and exploring and achieving more fully the use of improved fuselage and wing design and controllable pitch propellers.

Many controllable propeller manufacturers, both here and abroad, have announced inter-

improvements of their products specifically designed for use by low horsepower aircraft. Use of such props has already proved an accurate way of stepping up performance on larger ships but, as far, has been but slightly applied to lightplanes.

Similarly, the application of larger powerplants to lightplanes has emphasized the fact that basic aerodynamic designs have remained in many cases largely the same as pre-war versions. The power usage has been shown as perhaps the easiest answer to adding "selling point" performance advantages.

Stinson has announced an increase from 125 to 150-hp. for its postwar Veegeer, four-place plane. Design changes stressed by the company emphasize greater

ridgely—wing shots and better stability with only one change, a new all-metal tail design, pointed directly at bettering maneuverability.

Raylarcraft's Model 15 will go to the market offering a choice between a 135- or a 140-hp powerplant.

Piper, having first announced a 125-hp trainer prototype of its Skyplane, jacked the engine rating up to 145-hp to accomplish better flying characteristics.

One of the largest power increases came from the Republic Stearman, raising the amphibious engine's output from 120-hp to 175-hp.

Globe's increasingly watched Swift went recently from 85 to 115-hp to pull its all-metal frame through the sky at higher levels of speed and performance.

One of the new planes, the Johnson Rocket, has been designed for flight behind a 145-hp engine but, unlike most of the others, stresses aerodynamic advantages along with the added power and an automatic prop.

At least one of Calver's experimental models is testing a 105-hp powerplant compared to previous standards of 75-80-hp for the company's ships. Other de-

Disaster 'Cripples' Florida Aviation

What is described as "the worst disaster" in civil aviation in the Miami, Florida, area, one that will probably set back private flying and civil aircraft operations in that area for many months, was an area-published report of the recent hurricane and the damage that destroyed more than 125 private planes at Redwood Naval Air Station.

The commandant of the station had visited the open stores and private plane owners in the area to show these planes in the three huge hangars at the light-house air station, to protect them from the incoming hurricane, and 150 civilian planes were lodged in the "hurricane-proof" wooden hangars. Besides the civilian planes the hangars housed 30 G-40s, 213 war planes and 100 ground control vehicles.

Gas Lines—Four of the hurricane destroyed part of the hangar, crumbling walls falling down huge timbers on the planes inside.

It is believed that the timber attached gasoline tanks, allowing them to escape. These became scattered and all three hangars and their contents were destroyed by fire, which could not be fought successfully because of the storm. The elimination of 135 civilian planes from the Miami private flying picture poses unusual complex problems, among them emergency compensation and possibility of Navy liability for the destroyed civilian aircraft.

Replacement of the equipment at a time when new post-war planes are just beginning to trickle off assembly lines at a few manufacturers, and when customers delivering on post-war planes are probably on credit only.

Loss of planes is especially unfortunate at the beginning of the first post-war Florida winter tourism when an unusually heavy tourist for flight schools, plane rentals, charter flights and flying tours is being expected.

May's New Crop

May's New York development store has contracted to sell the Breeze, two-control, six-place personal plane, and will supply one of the units in a sixth floor sales department shortly after the first of October.

The purchase price of the plane will include instruction up to solo flight at the Vero Beach, N. J., airport. It is understood that the May's arrangement differs from its previous sales arrangement with Champion Sales in Chicago, in that May's will provide its own sales staff. The New York store is expected to establish a larger aviation department later and affiliate with other private flying bases in the New York area.



AIRPOWER AIRPARK:

How an airpark may be developed as a community center is suggested by a bulletin of the Air Power League reproduced above and showing: 1. Club house, 2. Hall, 3. Parking, 4. Hangar, 5. Tennis courts, 6. Playground, 7. Swimming pool, 8. Baseball diamond, 9. Paved ground, 10. Road camp, 11. Horseback camp, 12. Golf course. Such a development will enable many community interests to enjoy the community center and share the cost with the private owner, it is pointed out.



POST-WAR CHIEF

Plans published and pictured herebefore than the *Aeromax* stabilizer, the Champion, in the post-war version of the Chief, seem to parallel the Champion on the production line. Landing gear, wings, tail surfaces and engine installation are interchangeable on the two planes, but the Chief, a mid-by-end version, such were "deluxe" equipment will be "slightly higher in cost" than the \$2,885 quoted for the *Aeromax* Champion.

sign changes are less published. Even put-up the use of enlarged powerplants rather than changed designs was typified by the Stearman Hammond with models of the same ship being planned for 80, 120, and 150-hp engines. In this case, however, the revolutionary design of the craft was seen as justification.

Use of added power to compensate for added equipment, becoming more and more important as a postwar selling feature, is typified by the Bessie, a propeller plane, still almost alone in its particularly advanced field of simplified control and safety. Addition of 50-hp to the craft's production

was 60-hp engine will take care of a starter and generator.

As the impact of conservatism and the need for speed in preparing for the hungry post-war market lessen, many persons in aviation believe that horsepower will automatically become secondary to new designs as a means of improving performance, particularly as many builders approach the power limits their present models will handle.

CAA Inspection Revisions Pushed

Statistical report of steady civil flying growth spurs boards campaign to enlarge licensing force, cut end type

Statistics showing a steady expansion of civilian flying, reported by the CAA General Inspection Division for the year ending June 30, are being used as a springboard for a campaign within CAA to enlarge the division.

The report shows that the number of student pilot certificates increased month-by-month from 1,288 issued in July, 1944, to 6,733 in June, 1945, approximately a 500 percent increase. In the same period private pilot certificates issued increased from 733 to 1,265 a month, and commercial pilot certificates jumped from 315 in July, 1944, to 6,884 in June, 1945.

Service Pilots—Many of the new commercial certificates were issued to service-trained pilots, an abnormal condition resulting from the war, but which is likely to continue until most of the service

pilots who expect to continue flying obtain their commercial licenses. After this the private pilot certificates will again be in the majority.

Number of mechanics certificates issued has increased four-fold in the last year, from 70 in July, 1944, to 283 in June, 1945, the report shows. Written exams given have increased from 4,624 to 18,677, and aircraft registrations from 315 to 1,883 for the same months. Only a small increase is reported in aircraft inspections, from 2,579 to 2,733.

Staff Shales—The division reports that the staff of inspectors has not been increased for more than a year, which is causing delay in certification of pilots, mechanics and planes. Changes permitting qualified flight examiners, not CAA employees, to flight test private pilot applicants, have partially alleviated the condition, yet it is reported that new staff thousands awaiting CAA inspectors at the nation's airports.

Curbs and elimination of some of the voluminous reports which are still required in connection with certification, and which make up such a large part of the inspection division's duties, is being suggested in aviation circles outside CAA, as a prelude to the increase in inspection personnel which is being advocated by the division. It is believed that creation of additional private pilot flight examiners and revising regulations to permit them to issue more permanent private certificates would ease the situation.

Eventually it is agreed that the division may require some enlargement. But, a strengthening of forms and reports and elimination of all possible red tape is regarded as a necessary forerunner to such a move.

Canadian Flight Bans

An early end to remaining defense regulations limiting the use of private aircraft in Canada, is expected by Dominion aviation circles. Post-war status has been passed for most phases of private flying there, already, with private members of civilian flying clubs allowed to acquire a flight license, after wartime bans against new licenses.

Provision to fly any particular aircraft, however, is still dependent upon permission from the Minister of Transport, Night flying bans also are still in effect.

CROWD MAGNET



Photo by Joe Brown for the Post

Men and women stop to marvel at a helicopter. There is something miraculous about a machine that hurls or glides in the sky without wings or propeller. And this forward, sideways or backward—bores in one spot—descends or ascends vertically. Looking at it with the ground, to make flying an easy step to anywhere.

The helicopter's high crowd appeal was shown (above) a few months ago in a demonstration of the Kellett XH-6 military model at Fairmount Park, Philadelphia, under sponsorship of the U. S. Army Air Forces.

With the ease of a hummingbird, the XH-6 flew in, high over the crowd, and landed to rest in a space only 100 feet square. Then the helicopter swung straight up, backed, swung from side to side like a pendulum, whirled, hovered. Finally it sped forward, at a faster clip than a motor car in loose on an express highway, in complete mastery of speed, height and direction.

Just what the public's keen interest in helicopters will mean in future industrial and commercial uses for this unique type of machine is more than for Kellett Aircraft can forecast. As the oldest American designers and producers of rotary-winged craft, we consider one of the helicopter's most valuable features something we did not design or make—its inherent "crowd appeal," even to a nation which accepts modern streamlined trains and 400 mile-an-hour airplanes without a second glance.

Operating details, including cost and payload, may postpone the widest practical application of the helicopter. However, specialized money-making applications seem close at hand. Kellett Aircraft and other important organizations in the helicopter field are devoting time, money and experience to hasten the day when these craft will meet the expectations of their most loyal customer—the American public. Kellett Aircraft Corporation, Upper Merion, Pa.

KELLETT HELICOPTERS

Lightplane Meeting Sets Varied Agenda

Widely varying lightplane technical subjects will be discussed in the two-day light aircraft meeting of the Institute of the Aeronautical Sciences at Detroit, Oct. 5 and 6. First-day papers will include: "Elimination of Direct Reading Compass Errors by Paper Aircraft Design," by J. Marshall, of G. M. Chevrolet & Co.; "Instrument Aircraft Radio," by H. T. Baggett, Lear, Inc.; "Structural Failures and Defects of Light Aircraft," by Burdell L. Springer, CAA structural engineer; "Flyable Models of Post Reconnaissance Lightplane," by F. B. Lane, Engineering & Research Corp.; "Unified Approach to Private Aircraft Design," by George M. Tweney, Detroit University.

Second-day papers include: "Ground Vibrations of Helicopters," by M. I. Dvachuk, Wright Field; "Roadability and Landing Requirements in Aircraft Undercarriages," by Raymond M. Bauer, Consolidated-Vallie, Aircraft Corp.; "Control Operation of the Sport Wing," by George Speert, Consolidated-Tulac, and "Simplified Design for Low-Cost Airplanes," by Alfred Marchen, president, Republic Aviation Corp. Chairman of the four sessions will be Prof. Arnold M. Kuethe.

4,000 Swifts

Plans for production of 4,000 Swifts by the end of 1946 have been announced by Globe Aircraft Corp., at Ft. Worth, Tex., and the company has already issued firm purchase orders for the engines to power these planes.

The company's planning and building has been paralleled by more than 35,000 inquiries which have been received during the past nine months in response to solicitations and advertising about the two-place, low-wing monoplane.

Breaker Response — Another attack to planning has been the receipt of more than 38,000,000 of purchase orders from distributors, dealers and independent customers, now held by the company.

First production, all-metal Swifts were scheduled to be completed early this month with a line of others following it.

University of Michigan; Peter Altman, Detroit aeronautical engineer; Walter Jensonson, Piper Aircraft chief engineer, and William R. Steel, Graham-Paige Motors Corp.

Department Store Sale Set For Cub

Mandel Brothers' Chicago department store has announced placement of a post-war Piper Cub two-seat plane on display in the store's new airplane department. The store will accept orders for spring delivery.

Customers will be permitted to use their regular charge accounts or a deferred payment plan in making plane purchases. Purchase price for delivery at nearby Palwaukee airport is \$5,010. **Expansion Planned** — While the Cub is the first to be displayed by Mandel, the company expects to add other types and makes of planes to its airplane display room when they become available.

With every plane purchased, the company will include eight hours of free flight instruction, to be given by Dwight Morrow, World War I flyer and former Army instructor at Palwaukee airport.

Mandel Brothers also reports it is the first department store in the United States to have filed applications with the Civil Aeronautics Board to use airplanes in delivery of retail purchases.

William D. Strohmeier Joins Gale Associates

William D. Strohmeier, veteran lightplane pilot and aviation writer, has joined the firm of Charles H. Gale Associates, New York, to handle public relations accounts for several aviation organizations.

A former editor of Sportsman Pilot magazine, Strohmeier has been a frequent contributor of aviation articles to many other magazines. To accept his new assignment he is leaving the Hawthorne School of Aeronautics, Orangeburg, N. C., where he has been instructor and assistant squadron commander of American and French Army aviation cadets,

and public relations director for the Hawthorne chain of airport operations.

For five years, previously, he was associated with Piper Aircraft Corp., Lock Haven, Penna., in sales and public relations work, part of the time as sales promoter manager. Active in various private flying activities and tours since his Auburn College days, when he was the first president of the National Intermediate Flying Club, Strohmeier now has 4,388 pilot hours.

Airport Firm, State Increase Air Roles

A state and an engineering firm last week entered strong bids for leadership in the development of peacetime landing facilities for the private and commercial flyer.

Linked together in their latest effort the state, Michigan, and the engineering firm, Giffels & Vallie, Inc., of Detroit, were planning expansion of the Ann Arbor airport into a Class III field capable of handling an anticipated increase of traffic from such nearby generating points as the University of Michigan. The field will also be made ready to share in funds allocated under a national airport program.

Steps Forward — For Giffels & Vallie the new project raised to 17 the number of airports the firm has developed, and for the state it meant another step forward in a program that has already attracted nationwide queries to its Board of Aeronautics for advice in planning similar or expansive plans.

At the Ann Arbor field, space will be provided for several fixed base operations, air clubs, feeder services, and private craft barning. Among the services of increased traffic is an expected rise in the use of planes by persons attending instruction and athletic functions at the university.

Spokane Flight Boom

More than 388 residents of Spokane, Wash., now are enrolled in flying schools according to a survey of fixed base operators of the area.

Some operators have indicated their inability to handle instruction requests with their existing fleets of planes, and are looking forward to new plane deliveries expected to begin the first of next year.

CURTISS SEAHAWK



HERE'S the fastest traveling, highest climbing, heaviest armed, most maneuverable "eye" the Navy has ever had! It's the Curtiss Seahawk, versatile one-place scout whose specialty is pinpointing enemy ships and shore installations for naval attack.

The Seahawk can even sock them itself for it carries both depth charges and bombs.

Fundamentally, this swift bird of prey is all set for missions of reconnoiter, too. Because work is facilitated by bank space in the fuselage.

With twice the speed, nearly three times the horsepower and many times the firepower of any airplane in its class, the Seahawk is another Curtiss-Wright contribution to a vastly superior Naval air arm.



From now on, the Navy's way of saying "I'll see you" will be to catapult a Curtiss Seahawk into the skies.



MISSION OF HUNTER With its extra beam power and fuselage bank space, the Seahawk facilitates mission of time loaded down at sea.



MISSION OF DESTRUCTION The Seahawk can do just what it's built for. This new plane carries depth charges. Under each wing is a bomb rack.

All of the big guns on Navy ships and a majority of shore radar guns are directed by tubes designed by Bell Telephone Laboratories and made by Western Electric.



From the very beginning, ground radars made by Western Electric played an important role in all tactical war.



What **TEAMWORK** did for **RADAR**

Bell Telephone Laboratories and Western Electric were "naturals" for the leading part they played in the radar program. For years they've worked as a team in developing and producing complex electronic equipment.

Here are some unadorned facts about what their teamwork made possible.

Up to the end of the war, Western Electric had furnished the Army, Navy and Air Forces with more than 56,000 radars of 64 different types, valued at almost \$900,000,000.

In 1944 alone, Bell Laboratories worked on 81 different types of radar systems and Western Electric produced 22,000 radars of 44 different types — of which 20 were new in production that year.

Western Electric was the largest producer of the cavity magnetron and other essential vacuum tubes for radar. Number of tubes required for Western Electric radar systems varied from less than 100 to nearly 400 per system.

Complexity of radar manufacture is indicated by the fact that even a simple type may require 4,000 labor hours to manufacture and the larger types as much as 40,000 labor hours.



Beam-directing radars used on U.S. ships were designed by the Lab criterion and made by Western Electric.



This team developed and produced low altitude radar bombights widely used against the enemy's merchant shipping.



Bell Laboratories developed more than 100 different radar test sets. In 1944, Western produced over 40,000 test sets of 68 types.



A school to train military personnel to operate and maintain radar was established by the Laboratories. Over 100 courses were given to over 4,000 officers and men.

The same team is working for YOU!

The unique combination of brain power and manufacturing facilities that made Bell Laboratories and Western Electric the nation's largest source of radar, is now devoted to bringing you the best in communications equipment for a world at peace. In peacetime off-shoots of radar—and in FM, AM and television broadcasting—in radio telephone equipment for every type of mobile service—this team can be counted on to lead the way.



Western Electric built up a Field Engineering Force of more than 500 specialists. They served with all branches of the Armed Forces on all fighting fronts.



BELL TELEPHONE LABORATORIES
World's largest organization devoted exclusively to research and development in all phases of electrical communication.



Western Electric
Manufacturing unit of the Bell System and nation's largest producer of communications and electronic equipment.

PERSONNEL

Veteran Air Writer Joins Research Firm

George F. McLaughlin (photo), well known technical aviation writer for more than 30 years, has been named director of technical publications for McGraw-Hill-Carr Associates, Inc., New York research and engineering firm. He joined with Aerial Age in 1935, he shifted to a 16-year stint as editor of *Aerial Digest*, for more than two years he was vice-president and technical director of Jordon's Aviation Corp., and previously was associated with Glenn Colton and other early aviation and public relations representatives.

Col. Thomas C. Gentry, captain of the 145th Air Force and chief aviator for the general Flying Team in China, has been appointed medical director of American Airlines. Colonel Gentry holds the Legion of Merit for his work in establishing emergency hospitals in China, the Distinguished Flying Cross and the Air Medal for his participation in the evacuation of sick and wounded over the Hump into India. He succeeds Lieut. Col. Edward C. Greene, U. S. Army, retired, at American Airlines.

John D. Warren has been named to the board of directors of TACA Airways, S. A., parent company of the TACA airlines in Central and South America. Warren is a partner in G. H. Walker and Co., investment bankers, New York. Other TACA directors are: Jack Frye, president of TWA; John M. Lockhart, Charles E. Matthews, vice-president of engineering of TACA; Herbert A. May, vice-president of the Union Switch and Signal Co., Bensenville, Penn.; Kenneth H. Murray, of the Donald M. Murray Co., Birmingham, F. Papp, president of the Postcard Co., Wilmington, Del. and Triumph Industries, Elkins, Md.; Frederick M. Pryor, partner in the Wall Street firm of Wallington and Co.; Webster R. Todd, chairman of the board of Todd and Brown Engineering

Corp., N. Y.; T. B. Wilson, chairman of the board of TWA; and Lowell Terve, president of TACA Airways.

Continental Cargo Task Assigned Gerald Kitchen

Gerald S. Kitchen (photo), formerly research analyst for Continental Air Lines, Inc., has been appointed to the newly-created position of cargo traffic representative for the company. In this capacity, he will be charged with the development and expansion of Continental's cargo and air express activities. Kitchen, who joined the airline in 1935 as junior traffic agent, has been traffic dispatcher, supervisor of passenger service at Denver, and senior traffic agent.

Chicago Branch of Aero Insurance Underwriters announces that Eash and C. Lane, former underwriter, has returned and Gus A. Pinnagut, former staff engineer, will rejoin the company Oct. 1. Lane qualified as an instructor at a civilian Navy contract school when the war broke out, remained there until the summer of 1944 when he became a graduate instructor for Douglas Aircraft. Pinnagut went to Howard Aircraft factory as a test pilot, during the war, and more recently has been pilot on a Navy-owned Grumman Wildcat assigned to the Nash-Kelvinator Corp.

B. Allison Gillis resigned his resignation, September 1, as vice-president of Ryan Aeronautical Co., Glendale, who had resigned previously to be with Ryan for the duration only, will return to private practice as consulting engineer.

Peter Cole, formerly publicity director of Canadian Pacific Air Lines, Montreal, and recently special assistant to vice-president W. N. Seal, Canadian Pacific Airways, has been named publicity director for eastern Canada division of the Canadian Pacific Railways.

W. V. Hinder, widely known in the aviation technical field throughout the United States, has been appointed assistant manager of the aviation division of Standard Oil of California, a unit of the marketing department.



Alexander M. Wright (right), manager of Chandler-Evans Dayton plant since the start of its construction in 1943, has been named assistant general manager of the corporation. Floyd C. Gunderson (left), director of field and service engineering, has been appointed to the post of sales manager for Chandler-Evans.

Al W. Casaver has been made chief pilot and flight research manager of Ryan Aeronautical Co., San Diego, Calif. Casaver, who learned to fly at Cleveland in 1938, is a veteran of flight testing with Bell Aircraft, Curtiss-Wright and Ryan.

Dr. Shao Wen Yuan (photo), who for the past 35 months has been in charge of research



activities in the Helicopter Research Division of McDonnell Aircraft Corp., has joined the staff of the Polytechnic Institute of Brooklyn to be research advisor for an important new position on the helicopter and to introduce the first research course on the helicopter incorporated into the regular curriculum of an engineering institution in this country. Dr. Yuan, as consultant for the aviation industry, also is presently engaged in a study of further studies for the Bell Aircraft Corp.

Clark M. Kee, for twelve years airway engineer for American Airlines, has joined the firm of Aeronaut Engineering Consultants, Inc., Washington, D. C. Prior to joining the firm, Kee was engaged in airway and airline construction and operation in Mexico, Cuba, Costa Rica and other Central and South American countries.

Frank B. Howe, for the past six years public relations manager for the aviation enterprises of Major C. C. Mosley at Grand Central Airport, Glendale, Calif., has resigned his own publicity office in Los Angeles. While with Major Mosley, he represented Cal-Aero Academy, Curtiss-Wright Technical Institute, Grand Central Airport Co., Polar Flight Academy, and Murt Kinn Flight Academy.



THE NEW KOLLSMAN FOUR-ENGINE SYNCHROSCOPE enables the pilot or flight engineer to bring all engines quickly to the same r.p.m. for the uniform power output required by economy and correct operating procedures. Designed at the request of AAF to cover military needs, these synchrosopes also have their application to transport aircraft, where they contribute to passenger comfort as well as to proper operation of the plane. The accuracy and dependability of these synchrosopes, together with their simplicity of operation, are characteristic of all Kollsman Aircraft Instruments.

KOLLSMAN AIRCRAFT INSTRUMENTS



PRODUCT OF
SQUARE D COMPANY
ROSLAND, NEW YORK GLENDALE, CALIFORNIA

COMMENTARY

Airborne Army Radar Aids Fit New Commercial Roles

Relatively light-weight radio or radar beacon systems for general air navigation believed answer to all-weather flying; uncanny accuracy of paratroop invasion equipment in guiding planes through zero-visibility weather revealed.

Top military leaders are agreed that powerful aids of airborne troops and equipment will be necessary at the start of possible future wars, or (we hope) of concerted military action to prevent such wars.

In such operations, various radar types and electronic equipment using pulse technique will be indispensable. The pattern for this was set in the Normandy invasion and greatly improved in the invasion of Southern France and the dropping of an airborne army behind the enemy lines in the Nijmegen-Aachen sector of Holland.

Airline Prospect — Improved equipment will be available for possible military operations in the future, and will also be adaptable to commercial and non-scheduled air operations.

Type of equipment included in the examples specified was the British navigational system known as Gee, to which the American system called Keros (Long Range

Navigation) is related, an airborne microwave search set with a PFI scope (Plan Position Indicator) which served as a radar map, small marker beacons used in conjunction with the search set; low altitude absolute altimeter, and, in some ways most important of all, the Rebecca-Eureka interrogator-beacon system, largely a British development. By the use of this equipment large-scale operations were carried out in the dead of night and in spite of thick fog.

Troop Carrier Paratroopers in Southern France, for example, picked up the microwave check points, accurately located the dropping zone, and dropped paratroopers through a solid blanket of ground fog, only half a minute late after a 3-hour flight. The paratroopers set up the lightweight Eureka beacons, and the bulk of the transport planes equipped with the interrogator Rebecca, based on them with pin-point accuracy. **Check These**—Gee and the search

set were useful on the main journey for time checks, position checks and for locating the initial check points; the altimeter indicated the proper altitude for releasing the paratroopers; Rebecca-Eureka told them just when to drop. As an additional feature of the Holland airborne drop, a huge AGEW (microwave early warning) set in England "saw" the entire operation in its scope, despite the darkness and the bad weather which developed.

It should be clearly understood that all this is not radar, although it is all electronics.

The microwave search set and the absolute altimeter are true radar in that they transmit waves of radio energy and also receive and visually record a portion of that energy which has hit an object and bounced back—a two-way trip.

Pulse Technique — Gee (and Loren) and Rebecca-Eureka operate on the principle of pulse technique. As in radar the waves of radio energy are transmitted in highly concentrated bursts—this is the "interrogation." In the navigation systems the pulse is recorded by an airborne receiver from two or more beacons, and a fix may be obtained, no radio "echo" is returned. In the Rebecca-Eureka and the IFF (Identification, Friend or Foe) systems the transmitted radio beam triggers a transmitter-receiver known as a transponder, which returns a "response" obviously not an echo of the original beam.

The value of such "radio" (radio or radio beacon) systems for general air navigation is evident. There may be adaptations on the principle of IFF, whereby the ground radar picks up an approaching aircraft and obtains a proper response from its airborne transponder. However, there appears to be more likelihood of utilizing the Rebecca-Eureka method, in which the airborne interrogator - response (Rebecca) triggers the ground radar transponder (Eureka). This is IFF in reverse, and under either system range may be determined with uncanny accuracy.

Rebecca-type equipment weighs about 25 pounds, and improvements may cut even this relatively light weight to some extent. With a net-work of Eureka-type beacons throughout the country a trespasser's head would be green to all-weather flying.

NAVIGATOR



B-17 BUZZ BOMBS

American AAF experiments with launching rocket bombs included attaching wing racks to a B-17 Flying Fortress, pictured for the first time, which made it possible for the B-24 to run jet missiles to be released as air-air. Two racks were attached, under the wings beyond the outboard engine, and the missiles were accelerated with a standard bomb chute. Wing racks reduced speed of plane about 15 mph and gross weight of the plane with bombs was approximately 30 tons.

KOSAN INSERTS AND STUDS

revolutionize fastening in
SOFT METALS • PLASTICS • WOOD



Permanent because locked in the material.

May be welded in, or installed later for repair or replacement purposes.

Removable by drilling without disturbing the parent material.

The heart of the Kosan Locking System is the locking ring. Its serrations are broached into the parent material and prevent turning or loosening under vibration or torque.

Kosan Inserts and Studs are easily installed, can be easily removed. They do away with the need for creative replacements, and so effect great savings in parts inventory, in addition to the savings in parts salvaged.

Leading aircraft companies have adopted the Kosan Locking System. The automotive industry and others are also recognizing the advantages of this revolutionary method of fastening.

Write or wire for full information.



National
PRODUCTS
BETTER THE WAY TO LIVE

THE NATIONAL SCREW & MFG. CO., CLEVELAND 4, O.

planes employed conventional tractor propulsion, with the engine mounted behind the pilot, and the shaft running under the cockpit to the nose. In the DC-3, the installation is reversed. The engines are placed forward of, and below, the passenger compartment, with two shafts passing to the rear to drive pusher propellers mounted at the tail.

Despite fears of military and civil aeronautical engineers, who first examined the *Aircobra*, that the extension shaft would frequently snap, more than 12,000 airplanes using the installation were built, without a single case of shaft failure.

In the DC-3, the extension shafts are considerably longer than those employed in Bell's fighters. In the Douglas plane, the shafts measure 18-ft., but are in several sections, with the joints supported by ball bearings. A level gear box, two-thirds of the distance between engine and propellers, directs the shafts upwards to the propellers which are mounted high off the ground.

► **New Fraps**—The propellers, too, are something new. Curtiss-Wright Corp., their manufacturer, explains that while the ordinary dual propeller has two hubs and two sets of blades driven from a single power source, the installation on the DC-3 is powered from two en-

Ignition Television

An apparatus which follows the location and nature of engine ignition faults without direct access to the engine has been developed by B. H. Hayes and Son and English Electric Co. The ignition performance is driven, potentially on a screen, while the engine is running. The picture consists of a row of peaked figures, one for each spark plug arranged in the firing order of the engine, starting from a selected cylinder. Perfect ignition gives a steady row of identical figures, but any fault in the system alters the shape of the figures.

► **Defect Varies**—A faulty plug affects the corresponding figure and can be identified from its position in the row, while a defect in the magneto or the distributor alters the shape of the whole row of figures. Instantaneous defects cause the figures affected to flicker in step with the defect.

driven by two shafts, which merge into a central shaft at a gear box.

The engines are the same as those used in the *Aircobra*, the Mustang, Lightning, Warhawk and Republics. A 12-cylinder, V-type, each engine has a takeoff rating of 1,800-hp., at 2,300-rpm., at 3,000 ft., and maximum cruising horse-

power of 1,800 at 2,300-rpm. up to 18,000 ft. Allison claims the engines have the lowest weight per horsepower of any engine now in commercial transport.

Although showing only a single propeller installation, the DC-3 actually is a two-engined airplane, with single engine performance probably more satisfactory than any other. The two propellers may be feathered independently, and single engine flight may be maintained without any adjusting of control surfaces to compensate for loss of power on one side of the airplane.

Secret Fuel Spray Revealed On B-29

Bendix direct injection system shows pressurized gas into individual cylinders; new security standards developed.

Details of new fuel-feeding systems which shoot pressurized sprays of gasoline directly into the cylinders of the Wright engines powering Boeing's B-29, have just been disclosed by Bendix Aviation Corp., developers and producers of the systems.

Melvin P. Ferguson, in announcing the bendixdirect secret equipment, and the "direct fuel injection" system disclosed more than 13 years of research by the corporation's engineers and intensive laboratory tests conducted in cooperation with engine manufacturers and Army and Navy experts.

► **Milestone**—They developed a system which, for the first time in



Reveal Direct Fuel Injection: Outgoing model in larger picture illustrates inner working of the new direct fuel injection system developed for the Wright engines which power Boeing's B-29, by engineers of Bendix Products division of Bendix Aviation Corp. Left to right are Frank C. Mock, manager of Bendix-

Strawberry aircraft carburetor engineering sales and service; John Marshall, direct injection project engineer, and C. D. Monkard, manager of aircraft fuel equipment sales. Smaller picture shows laboratory cutaway of cylinder, the technicians' hand holding the fuel spray nozzle.



For Utmost Dependability.. WITTEK Aviation HOSE CLAMPS



a large air-cooled engine, combines the most effective elements of advanced fuel and air measurement and metering with the principles of accurate, programmed injection of fuel directly into the individual engine cylinders.

Explaining operations of the system, Frank C. Mock, director of the corporation's aircraft fuel equipment engineering and sales, pointed out that large single-cylinder air-cooled engines had long posed a particularly difficult fuel distribution problem, that of obtaining even mixtures of fuel and air in the different cylinders. As the size of air-cooled engines was increased, new ways had to be found to deliver equal charges of fuel and air to the individual cylinders in order to ensure more stable, efficient and economical operation.

Direct fuel injection into individual cylinders is one workable solution. In the case of the B-25 engines, another immediate solution stemming from years of research was at hand to obtain the accurate "master control" of fuel-air measurement so vital in aircraft fuel-feeding equipment.

Control Flap.—To achieve this master control, Bendix-Stromberg engineers adapted for new use in direct injection the automatic metering devices already perfected and tested in widespread civilian use on the company's aircraft "injection carburetors."

Mock said these fuel-air master control devices, not only meter the fuel feed according to the mass rate of engine air consumption but also provide for automatically controlled variations of fuel air ratios as desired for different conditions of engine operation, including automatic mixture enrichment for maximum power requirements.

Working with the Air Technical Service Command and Wright Aeronautical, engineers successfully blended the master control devices with new and improved developments in fuel injection pumps, streamlining from Bendix engine principles.

Two Pumps.—On the B-25 engine, two small compact injection pumps, each synchronized with the main engine drive shafts, accurately divide fuel into equal parts and pump it at high pressure into individual cylinders via straight stainless steel lines. Each pump consists of nine finely-machined "plungers" which spray fuel into the cylinders in a series of tiny shots at the rate of one spray from

each plunger every twentieth of a second.

Fuel accurately metered by the master control is injected directly into the engine cylinders at pressures ranging from 800-lbs to 3,500-lbs, and at speeds up to 1,000 ft. per second. This tremendous increase in pressure has been made possible by special selection of new steel alloys and precision machining of plungers to tolerances of ten millionths of an inch, through newly supplied production and gaging techniques.

Northrop, Grumman File War Sales Data

Northrop and Grumman aircraft companies have submitted reports to the Securities and Exchange Commission listing total sales, percentage of war business represented by such sales, as well as the amount of unfilled war contracts on the books at the beginning and the end of the period covered by the reports.

Grumman, reporting for the three-month period ended June

Stirling Converted

The Short Stirling bomber is being converted into a passenger and freight transport, powered by four Bristol Hercules XVI air-cooled, sleeve-valve radial engines, each of 2,000-hp, driving three-blade full-strengthened deHavilland propellers.

Loaded to 70,000 pounds, it can carry a payload of 18 passengers and their baggage—equivalent to 3,800 pounds (1,300 pounds of freight and 3,000 pounds of mail, to total 6,800 pounds)—a distance of 1,200 miles at a speed of approximately 387-mph, leaving a fuel reserve for a further two and a half hours of flight.

Seat Flap.—Passenger seats are arranged nose-to-tail on each side of the lined and sound-proofed cabin. Immediately aft of the passenger compartment is a wardrobe, and aft of that, a galley with vacuum flasks and other kitchen equipment. Still further to the rear are two lavatories.

The freight compartment, which has a capacity of 104 cubic feet is in the nose. Mail is carried in the belly bins in specially designed containers.

The plane has a span of 99-ft., one inch; is 77-ft., three inches long and 23-ft., nine inches high.

30, listed total sales of \$74,000,000 (estimated) all of which were represented by war orders. At the beginning of the period, on April 1, the company had on its books unfilled war orders totaling \$153,500,390, and on June 30 a total of \$270,000,890 worth of war orders.

Northrop, reporting for the 13-month period ended July 31, reported total sales estimated at \$87,800,000, of which \$60,100,000 represented war contract sales. On Aug. 1, the company had on its books unfilled war orders amounting to \$60,500, while unfilled war orders on July 31, 1945 totaled \$112,700,000.

Nine 'Air Engineers' Get High SAE Posts

Nine aeronautical engineers have been named to a Society of Automotive Engineers' technical board of 23 high-ranking technicians to coordinate and supervise all technical committee activities of the society.

In addition, the board will direct the development of a new co-operative engineering program designed to implement the request of Louis Gen. Lewis H. Campbell, Chief of Ordnance, for broadening and intensifying the war-time "functional teamwork" of RAR and Ordnance engineers to retain motivated military equipment superiority.

Among those named to the board were Rex B. Beaul, general manager, Chance Vought division, United Aircraft; R. M. Harro, chief engineer, Allison division, General Motors; H. D. Kelly, superintendent of development, United Air Lines; William Littlewood, engineering vice-president, American Airlines; Eric Martin, engineering manager, Hamilton Standard Propeller division, United Aircraft; Arthur Wall, director of aircraft engineering, Packard Motor Car; Mac Short, vice-president, Lockheed Aircraft; R. H. Young, chief engineer, Wright Aeronautical; and A. T. Colwell, vice-president, Thompson Products.

Boeing Terminations

Boeing Airplane Co. has reported war contract terminations aggregating \$730,000,000 to the Securities and Exchange Commission. These figures include costs and fees under cost-plus-fixed fee contracts, but do not include net data for the company's Canadian subsidiary.

Dear P. J.

Have you ever considered what high frequency might do for us in reducing size and weight in our air conditioning unit?

I am told that a weight reduction ratio of 5 to 1 is not at all unusual. The Leland Electric Company makes power units of this type. What do you think of calling them in?

Ed

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Now

Another "impossible" job

has been whipped! Now, large, complex aircraft can have all the long-sought advantages of alternating-current main power. They can have it without the extra weight and nuisance of separate auxiliary engines, or d-c-to-a-c inverters.

ANOTHER G-E "FIRST"

The 400-cycle a-c system, first developed by G-E with important co-operation from Sundstrand Machine Tool Company, offers a saving in weight over former systems that, alone, is highly significant. Added to this are the important advantages of having 400-cycle a-c motor throughout the ship. The elimination of

motor brushes means elimination of the problems of commutation and brush wear encountered with d-c. Maintenance is reduced and simplified. You get better, more reliable performance at high altitude.

Parallel Alternator Operation

Until now, there has been no way of driving alternators from the main aircraft engines at constant frequency, and paralleling them on a common power line. Engine horsepower on many planes may be too small for the alternator rating. The individual engine speeds may vary over a 4 to 5 range, with very rapid acceleration. Yet the alternator on each engine must run at constant frequency, must parallel reliably, divide load equally, and maintain electrical stability despite disturbances. To do this, paralleled alternators must be driven, under all conditions, within one or two mechanical degrees of perfect synchronism.

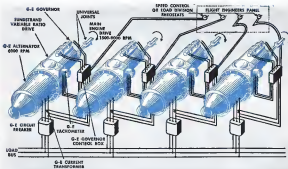
Extensive tests, under severe conditions duplicating those encountered on modern bombers, have convinced critical aircraft engineers that an airworthy solution of this tough problem has been found. The sketch at the right shows, schematically, how the new system works. *Alphabetized Dept., General Electric Co., Schenectady 5, N. Y.*

→ **TEST LABORATORY** where the new G-E 200-kva, 400-cycle parallel system was proved practical. Two 40-hp alternators are driven from 410-hp aircraft engines under typical service conditions of varying engine speeds. Rerouting electric load, and line faults, and their successful parallel operation is a routine everyday performance.



400 CYCLE A-C MAIN POWER

FROM THE MAIN ENGINES **DIRECT**



INTERPOSED between each engine and alternator is a hydraulic, variable-ratio drive developed by Sundstrand with G-E's co-operation. A G-E governor on each drive acts as a "man-in-the-middle," adjusting the drive to maintain constant alternator speed and to divide the load equally among the alternators. Circuit breakers (which will be remotely controlled from the flight engineer's panel) connect each alternator to the power line at the engineer's discretion. No special synchronizing controls or indicators are needed.

Rerouting, such as engine repositioning, alternator speed control, engine speed control, and engine load distribution, are provided, although not shown in this sketch.

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Buy all the BONDS you can—and keep all you buy

Great Circle Distance Basis Asked For Air Carrier Tariffs

Air Cargo, Inc. rate and tariff analyst urges new computation for express and freight to avoid errors made by surface firms; permanent charge basis believed possible.

A recommendation that air carriers adopt the use of Great Circle distances as a basis for air express and air freight rates is contained in a report prepared for Air Cargo, Inc., by an rate and tariff analyst.

All carriers should strive to establish and maintain a rate structure in tariffs as simple as is compatible with a clear and precise statement of the applicable charges, and certainly should profit by and avoid the errors made by the surface carriers, the report emphasizes. In that way, the report says, less technical help will be required in the tariff departments of the carriers as well as of the shippers.

If non-stop or certificated airline mileages from airport-to-airport are used as a basis for air express or air cargo rates, according to the report, there will be no permanent rate base. The base would be constantly changing, due to new non-stop flights, addition of new ports on scheduled routes, or change in airport locations, it explains.

Mileages—Surface carriers, according to the rate survey, have spent hundreds of thousands of dollars computing air mileages, some of which were incorrect before they were actually published because of abandonment of old routes or construction of new routes.

The report goes on to explain that there appears to be more logic in basing rail and motor rates upon the actual distance via route of movement or via the shortest available route than on great circle distances because these modes of transport are restricted to the use of a fixed route, which in many instances is circuitous, whereas as airplane may use the most direct route between two points.

The simple tariffs or systems of charges used by motor carriers prior to passage of the Motor Car-

rier Act of 1935 attracted a substantial volume of traffic from the railroads, particularly from shippers whose business was not justified by the maintenance of a traffic department, the report states. Thus, it concludes, there is no reason why adoption of simple rates and tariffs by the air carriers should not likewise help to attract business from the surface carriers.

Rules Revised—The report points out, however, that following passage of the Motor Carrier Act of 1935, the motor carriers, being pressed for time to publish charges a complete overhaul, practically adopted the charges of the rail carriers. Since such charges were not designed for motor transportation, great effort has been required to revise the rates to fit the particular type of operation. The adoption of rail rates also led to the adoption of tariffs by motor carriers which were as complex as rail tariffs, the report explains.

The "Fixed Report" on air express and air freight rates and tariffs which was prepared for Air Cargo, Inc., is of particular interest at this time since the air carriers are hopeful of building up one of the most important cargo transportation systems in America. While passenger fares have been slanted to figures well below published rates on many routes, little has been said in way of postwar cargo rates.

The Air Cargo report says "it is almost axiomatic that the air carriers will have two types of service, one an express service by which packages will be transported on combination passenger-cargo planes; and the other a cargo or freight service by which commodities will be transported on all-cargo planes. Such services will require two types of rates."

Urges Industry Tack—For the publication of these tariffs, the report recommends the adoption of

an industry tariff for both express and freight service and use the block method of tariff publication.

The block method of rate publication as explained in the survey was devised by the Interstate Commerce Commission. The United States was divided into 800 blocks along the lines of longitude and latitude—one degree of longitude and one degree of latitude representing one block. The degrees of longitude vary within the United States from 46 miles in the north to 47 miles in the south, while the degrees of latitude are constant at 60 miles. The mathematical average size of the blocks is 53.5 miles in width and 49 miles in length.

Paper Use Reduced—By the use of the block method of rate publication, according to the report under discussion, the volume of printed matter necessary to provide the applicable rate scale numbers can be reduced from 20 pages, as required in the present air express tariff, to about 10 pages. Another advantage, the report states, is in the fact that when additional points are served, the volume of tariff matter will not increase materially as would be the case with the point-to-point method of rate publication presently used.

Other recommendations made in the report in connection with air express and air freight rates and tariffs are: (1) that the offer of the United States Coast and Geodetic Survey to compute great circle distances be accepted; (2) that the "dimensional restriction" rule, now employed in connection with air express shipments, be discontinued; (3) that publication of rates for fractions of a pound be discontinued; (4) that the airlines give consideration to provision for minimum revenue to be allocated to each participating carrier in interline shipments; (5) that regulations be entered into with the Railway Express Agency for agreement to supply express other than local rates for freight haul on air shipments; (6) that any scale of rates or charges should be based upon a gradient of 50 miles instead of 100 miles; (7) that the scales of charges should be extended to cover all distances rather than ending at 1,250 miles; (8) that an industry rate and tariff bureau be established; and (9) that a shipper's discount plan not be adopted.



Boeing Stratocruiser

GIANT PLANES that will speed across tomorrow's skyways are dreams no longer. You will be seeing them more and more frequently... great ships like Boeing's new Stratocruiser now in service as the C-97. When peace comes, it becomes a high-speed, low-fare transport for more than 100 passengers. As a luxury sleeper plane, it will have 72 seats or 36 bunks on the upper deck, and a lounge, dining salon, crew quarters and cargo space below. It has a top speed of 400 miles per hour and can fly 3500 miles.

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• When the pressure is low, at high altitudes, American Bosch magnetos deliver faultless performance. And Sirvene gaskets and cable boots are on the job to help maintain that dependable service. Take the Sirvene gasket, for instance. In order to avoid the effects of reduced air density the interior of the magneto is pressurized. A positive seal is necessary around the entire distributor block and Sirvene engineers worked with American Bosch to perfect a special Sirvene formula and gasket design. A compound was developed which was soft, yet which had a good compression set, so that it gave the required positive sealing with a minimum of pressure. Another special Sirvene compound was engineered for the cable boots. In this instance, besides sealing against moisture, air and fluid, the boot serves as a solid insulation material between the cable piercing screw in the distributor and any external parts. As with all Sirvene products, extreme care is exercised in making these boots and gaskets. No flaw, however minute, is permitted, and all production procedures are executed under laboratory-type methods. All this is worth remembering when you have a problem concerning pliable parts which must operate in exceptional service conditions. You are invited to call upon Sirvene chemical engineers, whose backlog of experience and research is unsurpassed. They will be glad to help you.

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TRANSPORT

CAB Orders Avco Inquiry To Determine AA Control

Investigation highlights 1938 ban against air carrier affiliation with non-carrier aviation interests; action is first threat to long standing role of Aviation Corp. in American Airlines picture.

The Civil Aeronautics Board has ordered an investigation to determine whether Aviation Corp. has acquired or now holds control of American Airlines, Inc.

The impending inquiry reaches back to the air mail reorganizations of 1934. The community of interest among aircraft manufacturers and air carriers holding mail contracts was severely criticized and served as a basis of the 1934 action. As a result, one of the main provisions written into the Civil Aeronautics Act of 1938, prohibits any air carrier to be controlled by or affiliated with "any person engaged in any phase of aeronautics other than as an air carrier."

• **Sole Ban**—This stipulation was designed primarily to preclude an aircraft manufacturer from selling equipment to an affiliated air carrier at inflated prices with the cost being borne by higher charges to the public.

It was this philosophy which, in 1934, led to the dissolution of the old United Aircraft and Transport Corp. and the formation of three separate and independent enterprises, the present United Aircraft, Inc., United Aircraft Corp. and Boeing Airplane Co.

North American Aviation Corp., which had managed through a technicality to maintain ownership of the properties now comprising Eastern Air Lines despite the 1934 action, was finally forced by the enactment of the CAA in 1938 to dispose of its air transport subsidiary.

Now comes the CAB with its order instigating an investigation to determine "whether the Aviation Corp. has acquired, and holds control of American Airlines, Inc., within the meaning of Section 406 of the Civil Aeronautics Act of 1938 . . . and if such control has been acquired . . . will it be con-

sistent with the public interest." Varied interests—Among other things, the Board asserts that the Aviation Corp. is largely engaged in the manufacture of aircraft, aircraft engines, aircraft propellers and aircraft parts. Also that the Aviation Corp. is the largest stockholder in Pan American Airways Corp., holding approximately 6.32 percent of the outstanding shares.

At present, Aviation Corp. owns 167,536 shares or 22.25 percent of the outstanding common stock of American Airlines and as such is represented as the largest individual stockholder of the carrier.

While Aviation Corp. has been in the American Airlines picture ever since that air carrier's inception, the 1938 act never became a serious element until recently.

The present investigation might have been held in July, 1941, when Aviation Corp. converted American Airlines debentures and received 160,000 shares of the old American \$10 par common stock. At that time, such stock represented 33.7 percent of the total. Recognizing that there might be a conflict as to what represented control, Aviation Corp. arranged to transfer those shares with Jesse Jones.

Evidently, the government acquiesced in view of the airline's participation in the national defense program. This non-voting trust arrangement, as subsequently amended, is to expire six months after the termination of the national emergency.



STRATOCRUISER MOCKUP:

Interior of the Boeing Stratocruiser as it might look in commercial transport use are shown here in these first pictures of a mock-up at Boeing's Seattle plant. One is of the lounge, on the ship's lower deck, the other a mess toward the rear of the main passenger



compartment, in which all seats face forward whether berthing or non-berthing capacity. The commercial version of the C-47 will be 124 passengers. All-cargo model would carry a 20,000-lb maximum payload.

Possible PAA African Service Would Use Domestic Fare Base

Line contemplates 35-hour trips to Union of South Africa at rate comparable to 4½ cents per mile, if recommended route is awarded by CAB; Constellation, DC-7's are equipment alternatives.

Thirty-five-hour air service between this country and the Union of South Africa, at rates comparable to the 4½ cents per mile on domestic lines, is contemplated by Pan American Airways if accredited for the route recommended by Civil Aeronautics Board examiners in the South Atlantic case.

Two alternative plans are under consideration. If, as Pan Am hopes, Constellation can be obtained, the following air-way schedule would be operated:

May 16 to Nov. 15—weekly service.

Nov. 16 to Dec. 31—twice a week.

Jan. 1 to Mar. 31—three times a week.

April 3 to May 15—twice a week. PAA is now using Constellation.

on its transcontinental project for the Army.

Under the second plan, using DC-7's, service would be provided twice weekly from April to December and three times a week during January, February and March.

Proposed fares, ranging from 5 to 4.25 cents per passenger mile, are based on a sliding scale, with lower rates applicable to longer trips. One-way fare from New York to Johannesburg would be \$368. A berth would cost \$92 more.

Cargo rates would vary according to three classes of commodities.

Class 1, (high value), 10 to 40 cents a ton-mile.

Class 2, (low value), 15 to 25 cents a ton-mile.

Class 3, (bulk or no intrinsic value), 10 to 15 cents a ton-mile.

In their report to the board, Examiners William J. Madden and James S. Keith narrowed the field of applicants to Pan American and American South African Line, operator since 1934 of a steamship service between the U. S., south and east Africa, and Indian Ocean islands, who proposed using the Martin Mars flying boat if granted a certificate.

The favorable consideration given the surface carrier in the first determination resulted from the examiners' finding that these two applicants stood out in their ability to develop U. S.-South African commerce, the basis for justification of the route.

'Detached' Decision.—Designation of Pan American was "dictated" by the board's interpretation of the Civil Aeronautics Act, excluding surface carriers from airline control unless supplementary to their surface operations.

American South African Line's proposal, the examiners said, was not a service "which would be auxiliary and supplementary and therefore incidental to its airship operations."

Other factors placing PAA "on an approximately equal basis" with the steamship company as far as public interest is concerned and thereby favoring its selection were experience in a variety of world markets gained by pioneering routes across the Pacific to the Orient and New Zealand, the North Atlantic to Europe, and to most Central and South American countries, and the "route" it has in Africa.

Advantages.—Cited in the latest decision were acquisition in 1961, of operating rights in Liberia and Belgium Congo; a traffic agreement with the Belgian airline, Brussels; and Pan American's temporary certification for Minneapolis service, terminated, however, for the Minneapolis-Leopoldville segment which is now temporarily suspended only because no aircraft is available to Pan Am to replace a plane lost in an accident.

With respect to the proposals of American Export Airlines and Pennsylvania-Canada Airlines, only other operating carriers in the case, Madden and Keith apparently found little to justify recommending either for the proposed service. PCAA's argument that it could provide single-carrier service to African points from the many important eastern cities it serves was



This is no Alchemist's dream

Alchemists of old, in long, labored attempts, tried vainly to change common ores to precious metals.

While Duralund hasn't changed lead to gold, in essence, Duralund's engineers have achieved the alchemists' goal. They impart new character to common materials.

In light, plastic materials—cloth, paper, glass fiber, wood veneers, cellulose rubber and many others—the Duralund process creates a backbone of strength. Laminations of these materials are loaded with thermosetting resins under heat and pressure, frequently using synthetic, lightweight core materials between laminations.

Duralund gives them new qualities. Their pliancy is gone. They assume rigid strength, molded to precise

specifications in intricate and complexly curved patterns.

Here, then, in an industry now devoted entirely to production for the Air Forces, lies the promise—and the reality—of new materials for builders of peacetime products. Here, as in all Fairchild research and engineering, lies "the search of tomorrow."

YOUR PRODUCT—AND DURALUND. Yearned for strong, lightweight materials—air parts impervious to extremes of weather, fumes or corrosion—now you find this answer at Duralund. Fairchild engineers are specialists in exploring the possibilities for new applications of Duralund materials. For further detailed information about Duralund, send a letter to your business stationer. Write Department 10.

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Airline Division, Farmingdale, L.I., N.Y.

ATC Sets Global Route Pattern

Integration of the first regular round-the-world scheduled flight by the Air Transport Command, Sept. 26, will commemorate the 70th anniversary, to the day, of the first globe-circumnavigating flight by Army Air Corps planes.

First of the Douglas C-94 shuttles to start the weekly flight will leave Washington on a route that represents a consolidation of former intercontinental ATC routes. Plane changes will be made at three points—Kano, Mande and Sen Francisco.

Flight Stages.—Crew changes will be made at other stops along the route, which goes to New York, London, the Azores, Casablanca, Tripoli, Cairo, Abidjan, Kano, Kano, Laddag (Chen), Mande, the Mauritania, Kuyabon, Libanion Island, Hickam Field (Honolulu), San Francisco, Kansas City and back to Washington.

Passenger, mail and cargo will be carried, in proportion to War Department needs. Maximum passenger capacity will rise about 33.

(The ATC also declined, at the same time it revealed the round-the-world flight, it will begin soon a regular service between Paris and Tokyo via the U. S.)

Equipment for the service will be C-94 types.)

In contrast to the original AAP world flight of 26,245 miles in 1934, which required 158 days, time on the 1945 round-the-world schedule will be an estimated 251 hours (10½ days) to cover 23,467 miles.

'Globe-trotter'.—The starting plane will be christened "Globe-trotter" by the wife of Lt. Gen. Harold L. George, ATC's commanding general, at inaugural ceremonies at 3 p. m. Sept. 26, in Washington. The flight, 51 years ago, was also made in Douglas planes. Four two-engine airplanes called World Cruiser—one is now in the Smithsonian Institution—started the trip. Three finished it.

Several pilots who participated in the original mission are still attached to the ATC. They are Col. Eric Nielson, Col. Lowell Smith, and Col. Leigh Wade A. Smith. Col. Leslie P. Arnold, is on weekly status and is vice-president of Eastern Air Lines. Colonel Nelson and Colonel Arnold, with General George, will participate in the ceremony.

On board for the first trip will be several ATC observers and an ATC public relations man.

New, better synthetic rubber in B.F. Goodrich airplane tires

Another tire "First" that means longer wear; greater safety

AR. E. GOODRICH development is so important that it was kept a strict military secret until just recently, can now be disclosed. It's a new kind of synthetic rubber, better for size making than the ordinary synthetic rubber which is in general use by the tire industry.

This new rubber is a R. E. Goodrich development. Tires made of it give longer wear than those made of ordinary synthetic. They also run cooler under heavy loads, which is especially important as the trend continues to heavier planes.

B. F. Goodrich is making this new rubber in plants operated for the Government. It has been tested in all kinds of tires on all kinds of vehicles from passenger cars up through big bombers. Every tire containing it will stand up better under heat or constant flexing, will

wear longer, and will have increased burst-resistance.

This new rubber development is one more example of the kind of work going on constantly at B. F. Goodrich—the kind of improvement that will bring American aviation to better products after the war than we ever had before. It's one more indication that you get something extra in value and economy whenever you buy a B. F. Goodrich product.

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FIRST IN RUBBER



not "persuasive," while Export's experience in international operations did not fulfill the "more cost-effective manner" based on the route justification mentioned above.

In addition, the commenters pointed out that both PCA and Export relied heavily on a New York-Puerto Rico segment as support for the African service, which might reasonably become secondary to Puerto Rican service. The latter is before CAB in the pending Latin American case.

Air Snapshots Allowed

War-time ban on use of cameras by airplane passengers has been lifted by Civil Aeronautics Board repeal of Section 43.81 of the Civil Air Regulations.

The action, also obviating search of baggage and removal of cameras, was taken with the approval of the War and Navy Departments. Only remaining restriction is against photographing military installations.

DC-6 Development Gains New Orders

National to buy 11; UAL plans ground facilities expansion to handle new ships, first near completion.

With construction of the prototype of the Douglas DC-6 about two thirds completed, the four-engine, 399-mph plane was receiving increasing airline attention last week.

National Airlines announced that it was about to purchase 11 of the ships at a cost of \$7,500,000. United Air Lines, which has 33 on order, disclosed that it has under way a \$10,000,000 expansion program for airport and ground facilities to accommodate them.

Flight Data—First plane of this type is to fly shortly after the first of next year. An Army version, known as the XC-111A is being constructed at Douglas' Santa Monica plant, and it is on this that

work is about two thirds finished. Just how many DC-6's will be built, Douglas does not know. Company officials say airline orders are not definite, and may not be for some time, depending on the surplus situation as it regards four-engine equipment.

United issued drawings and description of the DC-6, which the line expects to have in service next year, showing that it would carry 52 passengers or more, plus 6,000-lbs. of cargo. National, in announcing that its board of directors had authorized its efforts to negotiate the purchase, said it expected the plane to carry 70 passengers.

Time Saver—United will use the DC-6 on its coast-to-coast and Pacific coast operations. They are expected to cut trans-continental travel time to 8½ hours or less.

The 66-ft. pressurized cabin will be divided into two sections, of which United suggests one could be used for berth arrangement and the other for day seats.

The company's expansion pro-



New Drawings of Douglas DC-6. These sketches of the Douglas DC-6, now nearing completion on the West Coast, show exterior appearance, interior seating arrangement, and layout of proposed berth arrangement as pictured by United Air Lines. Upper berth (not underbed) will be 8-11, 3-11, 10-11 and 32-11; lower berth, 8-11, 2-11, 10-11 and 41-11; under.



They want plane talk from you



Fellows who like flying like Mechanix Illustrated. It helps them. Suppose they're interested in learning to fly, but think it's too expensive. Articles like this one — "Start a Flying Club" — on Page 45 of the July, 1945, M.I., show how a bunch of fellows can learn to fly the cheapest, most practical way. Anybody with his head in a helmet and heart in the clouds has been looking for stuff like that. Mechanix Illustrated is filled with it.

Mechanix Illustrated tells them how to fly, how to buy, how to make, how to care for the airplanes they have — or will have some day.

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